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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KAZUMASA AYUKAWA and HIROMI MATSUURA

Appeal 2008-1475
Application 09/961,365
Technology Center 3600

Decided: August 27, 2008

Before MURRIEL E. CRAWFORD, DAVID B. WALKER, and
JOHN C. KERINS, *Administrative Patent Judges*.

KERINS, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Kazumasa Ayukawa et al. (Appellants) seek our review under 35 U.S.C. § 134 of the final rejection of claims 1-4 and 6. We have jurisdiction under 35 U.S.C. § 6(b) (2002). Claims 5 and 7-20 pending in this application are withdrawn from consideration as being directed to a non-elected invention. Appellants presented oral argument on August 12, 2008.

SUMMARY OF DECISION

We REVERSE.

THE INVENTION

Appellants' invention is a belt autotensioner having a base and a rocking arm that has a tubular part rotatably supported at the inside of the base, a friction member interposed between the base and the tubular part of the rocking arm, a pulley attached to the rocking arm that is to engage a belt, and a torsion coil that is attached to the base in an eccentric position relative to the axial center of the base, with the rocking arm being supported to be displaceable relative to the base. This arrangement results in a first damping force acting on the rocking arm when the belt is tensioned, and a second, lesser damping force acting on the rocking arm when the belt is slack.

Claim 1, reproduced below, is representative of the subject matter on appeal:

1. An autotensioner comprising:
 - a base that has a bottomed tubular shape;
 - a rocking arm that has a tubular part rotatably supported at the inside of said base;
 - a pulley that is attached to one end of said rocking arm, and abuts against a belt;
 - a torsion coil spring that is housed in said base, and biases rotation of said rocking arm in a direction tensioning said belt with respect to said base; and

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a friction member that is interposed between an outer circumferential surface of said tubular part and an inner circumferential surface of said base;

said torsion coil spring being attached eccentrically to the axial center of said base, one end of said torsion coil spring is connected to said base and the other end of said torsion coil spring is connected to said rocking arm, and said rocking arm being supported to be able to be displaced relative to said base, such that a first damping force acting on said rocking arm when said belt is tensioned is relatively larger than a second damping force acting on said rocking arm when said belt is slack.

THE REJECTION

The Examiner relies upon the following as evidence of unpatentability:

Kotzab	US 4,813,915	Mar. 21, 1989
Yasuhito (as translated)	JP 05-83516	Dec. 11, 1993

The following rejections are before us for review:

1. Claims 1-4 and 6 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yasuhito in view of Kotzab.

ISSUE

The issue before us is whether Appellants have shown that the Examiner erred in concluding that the subject matter of claims 1-4 and 6 is

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obvious, and therefore unpatentable, over Yasuhito and Kotzab. In particular, we must determine if the Examiner has established that it would have been obvious, in view of Kotzab, to modify the Yasuhito autotensioner to attach its torsion coil spring to its base in an eccentric position relative to the axial center of the base.

FINDINGS OF FACT

The following enumerated findings are supported by at least a preponderance of the evidence. *Ethicon, Inc. v. Quigg*, 849 F.2d 1422, 1427 (Fed. Cir. 1988) (explaining the general evidentiary standard for proceedings before the Office).

FF 1. Appellants use the term “damping force” to refer to a frictional force imparted to the rocking arm by a friction member that is disposed at an outer periphery of a tubular part of the rocking arm. (Specification, p. 12, ll. 19-24; Fig. 6).

FF 2. The torsion spring in the Yasuhito device is attached concentrically relative to the axial center of the base of the tensioner. (Yasuhito, ¶[0007]; Fig. 1).

FF 3. The torsion spring in the Kotzab device is attached eccentrically only with respect to the axial center of the base. The torsion spring is attached concentrically relative to the rotational axis of the rocking arm. (Kotzab, Figs. 1, 6).

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FF 4. The Yasuhito device is designed such that locally high contact stress between the rocking arm and the friction member is suppressed, and to stabilize contact facial pressure to obtain stable rocking resistance or damping. (Yasuhito, ¶[0022]).

PRINCIPLES OF LAW

Section 103 forbids issuance of a patent when the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art. *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1734 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill in the art, and (4) where in evidence, so-called secondary considerations.

Graham v. John Deere Co., 383 U.S. 1, 17-18 (1966). See also *KSR*, 127 S.Ct. at 1734 (*Graham* factors continue to define the inquiry that controls).

In determining the scope and content of the prior art, the reference or references cited must be considered in their entirety. *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1568 (Fed. Cir. 1987).

The Examiner bears the initial burden of establishing a *prima facie* case of obviousness in rejecting claims under 35 U.S.C. § 103(a). *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). See also *In re Piasecki*, 745

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F.2d 1468, 1472 (Fed. Cir. 1984). Only if this initial burden is met does the burden of coming forward with evidence or argument shift to the appellant. *Oetiker*, 977 F.2d at 1445. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments.

Id.

ANALYSIS

All of claims 1-4 and 6 on appeal stand rejected under 35 U.S.C. § 103(a) over Yasuhito in view of Kotzab.

Claim 1

The issue joined by the Examiner and Appellants with respect to claim 1 involves the recitation of:

said torsion coil spring being attached eccentrically to the axial center of said base, one end of said torsion coil spring is connected to said base and the other end of said torsion coil spring is connected to said rocking arm, and said rocking arm being supported to be able to be displaced relative to said base, such that a first damping force acting on said rocking arm when said belt is tensioned is relatively larger than a second damping force acting on said rocking arm when said belt is slack.

(Appeal Br., Claims Appendix).

Specifically, Appellants contend that neither of the cited references teaches a belt tensioner constructed with a torsion spring mounted eccentrically with respect to the axial center of the base, such that, together

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with other claimed structural features, including the provision of a friction member, “a first damping force acting on said rocking arm when said belt is tensioned is relatively larger than a second damping force acting on said rocking arm when said belt is slack.” (Appeal Br. 5-6).

The torsion spring in Yasuhito is attached concentrically relative to the axial center axis of the base, as is recognized by the Examiner. (FF 2; Answer 3). The Kotzab patent is cited as teaching the provision of an eccentrically attached torsion spring in a belt tensioning device, and the Examiner asserts that it would have been obvious, in view of Kotzab, to modify the Yasuhito tensioner to mount the torsion spring eccentrically to the axial center of the base. This would, according to the Examiner’s reasoning, provide a greater biasing force in one direction.¹ (Answer 3-4).

The Examiner further addresses Appellants’ contentions regarding the relatively larger and smaller damping forces acting on the rocking arm, stating that the damping force is a function of frequency, that frequency is a function of the applied load, and thus when the load on the rocking arm is increased (when the belt is tight or tensioned), a larger damping force on the arm is experienced. Conversely, when the belt is slack, the Examiner asserts

¹ It is unclear whether the Examiner is here attempting to equate the biasing force of the torsion spring to a damping force acting on the rocking arm, or is simply articulating a reason as to why a person skilled in the art would consider modifying the Yasuhito device. As used by Appellants, the term “damping force” refers to a frictional force imparted to the rocking arm by a friction member, separate and apart from the biasing force imposed by the torsion spring. (FF 1).

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that the load on the arm decreases, resulting in a lower damping force.
(Answer 5).

We are persuaded that the Examiner has failed to carry the burden of establishing that the invention set forth in claim 1 would have been obvious. At the threshold, the rationale advanced by the Examiner in asserting that it would have been obvious to modify the Yasuhito tensioner to attach the torsion spring in an eccentric position relative to the base fails to properly take into account the teachings of the Yasuhito and Kotzab references as a whole, and lacks the rational underpinnings necessary to support an obviousness rejection.

The Examiner acknowledges that the torsion spring in Kotzab, like the torsion spring in Yasuhito, is concentric to the rotational center about which the rocking arm rotates or pivots.² (Answer 5). Notwithstanding this similarity in construction between Kotzab and Yasuhito, the Examiner contends that modifying the Yasuhito device such that the torsion spring is positioned eccentrically to the axial center of the base (which would also result in the torsion spring being positioned eccentrically to the rotation axis of the rocking arm) would have been obvious, in order to obtain a greater biasing force in one direction.

The Examiner has pointed to nothing, however, that is indicative that the Kotzab device actually provides a greater biasing force in one direction.

² The Kotzab torsion spring is attached eccentrically only with respect to the axial center of its base. (FF 3).

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Moreover, the Examiner has not identified any evidence that persons skilled in the art were seeking to obtain this feature in a tensioner of the type disclosed in Yasuhito. The assertion that, in the Kotzab device, the damping force is a function of some frequency, which is, in turn, a function of an applied load, is also not substantiated.

Appellants' claimed construction results in the tensioner device having a larger damping force acting on the rocking arm when the belt is tensioned than when the belt is slack. The eccentric attachment of the torsion spring relative to the center axis of the base causes the rocking arm, when the belt is tensioned, to tilt and exert greater force on a localized section of the friction member, which increases the damping force. (Specification, p. 23, l. 16-p. 24, l. 5, Figs. 5, 6). In contrast, the design of the Yasuhito device specifically seeks to avoid locally high contact stresses on the friction member in that device, and to achieve stable rocking resistance (damping). (FF 4). As such, the allegedly obvious modification to the Yasuhito device, to attach the torsion coil in an eccentric position relative to the center of the base, is at odds with these aspects of the Yasuhito construction.

Given the lack of any guidance or direction in the prior art to combine the teachings of the Yasuhito and Kotzab references in the manner set forth in the rejection, the combination appears to read into the prior art the teachings of the invention at issue, and amounts to the impermissible use of hindsight. *See, KSR, 127 S.Ct. at 1742.* We will not sustain the rejection.

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Claims 2-4 and 6

These claims depend either directly or indirectly from claim 1. As such, the claims include the claim elements set forth in claim 1 that we have above concluded would not have been obvious in view of the Yasuhito and Kotzab references. No other prior art has been cited against these claims.

For the reasons discussed with respect to claim 1 *supra*, we conclude that the rejection of these claims under 35 U.S.C. § 103(a) is in error. We will not sustain the rejection.

CONCLUSION

We conclude that Appellants have established that reversible error exists in the rejection of claims 1-4 and 6 under 35 U.S.C. § 103(a).

DECISION

The decision of the Examiner to reject claims 1-4 and 6 is
REVERSED.

REVERSED

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GREENBLUM & BERNSTEIN, P.L.C.
1950 ROLAND CLARKE PLACE
RESTON, VIRGINIA 20191